

058586

**LONG  
ISLAND  
SINCLAIR  
TIMEX GROUP**

**L.I.S.T.ING**

**May  
1986**

**Issue Price \$1.50**

MEETING NOTES

The April, 1986 meeting of LIST was held at Huntington Public Library at 2:PM on the 13th. There were 18 members in attendance. The Sec'y-Treasure reported that the treasury held \$844., of which \$17. was owed to P.Donnely. There are currently 101 active members of LIST Group, with three memberships due to expire May 1st.

OLD BUSINESS

Martin H. was the only volunteer for LIST representation of Trenton Computerfest. He was given \$7., for the show fee, and is to receive handout materials from Chuck R. and Jeff S.

Martin also announced that he still has seats available in the van going to Cincinnati: total cost is \$125. The van leaves Friday PM and will be back by Monday AM

Jeff S. reported that no new volunteers have stepped forward for Data Base data entry. Since only about 20% of the exchange newsletters are now entered, it is doubtful that this project will succeed. Volunteers should contact Jeff S. or Myles Cohen.

There seemed to be little interest in having or running a Bulletin Board. The idea was dropped.

NEW BUSINESS

Chuck noted the excellent newsletter contributions of C. Bastiaans, Bob Gilder and Tom Gee (of Zebra Systems. Tom, came up with graphics tablet fix), and gave them a public note of thanks.

Patrick Fagan was elected treasurer. He will be installed at the next meeting, Jeff was given \$10. for refreshments.

NEXT MEETING

May 18th - Swapmeet (open to LIST members only) - June 15th - Artificial Intelligence - Martin H. will have a demo.

Meetings will be held at Huntington Public library at 2PM. Please note that Huntington library is closed in July & Aug. An alternative site is required.

Patrick F. passed around clippings from last week's Wall Street Journal and New York Times relative to AMSTRAD's buy-out of Sinclair. No one present knew anything more concrete than what was reported in these articles.

Myles Cohen mentioned LOADER 5 for Kurt Cosby. This is a Modem utility for \$10. Bob G. noted that Harvey Rait is recovering very successfully from a triple by-pass operation. The membership was delighted to hear this and we look forward to seeing Harvey at meetings in the near future. Bob also noted that Spectrum Computing and 16/48 magazine were out of business. He advised us also that Doug Dewey now offers an "NMI SAVE" emulator and Wes Bryozowski 64 column mode for the 2068. (see Nazirs article on how NMI works). Bob also showed us the CDC Quad Density drives, available for \$40 from B&G Micro.

John S. told us that Peter McMullen has produced Wordsync 3.5 and an advanced "data base" program for use with 1000 disk drives (Aerco).

Myles C. has talked to Tom Woods about our use of Pro/file in the group. Myles has been authorized to make copies for individual group members at virtually no charge. The only stipulations are that further copies not be made and that members seriously consider purchasing the excellent Pro/File 2068 documentation (well over 100 pages), from Tom Woods, for \$8.00. You can buy this directly from Tom by mentioning Myles name in your order. Myles will keep track of who receives the "free" copies of the program, for Tom. It is not required that you buy the book, only highly recommended. You must be a LIST member to take advantage of this offer.

PRESENTATIONS

Paul D. gave the group a thorough overview of Archiving Techniques. The basic principles and methods of hardware and software backups were discussed, Paul also demonstrated the use of Interface III, a Spectrum "NMI breaker" which stops programs and then takes a snapshot of memory which can be saved to tape and reloaded. Nazir P. further commented on Multiface I and the inadequacy of most protection schemes, particularly with conventional processors, like the 280. He noted that the use of a Shadow ROM, called by NMI (066), was an almost foolproof method of breaking programs.

Martin H. showed the group the "attention grabbing" part of his AI display for Trenton and Cincinnati. It consisted of two captioned photographs and a comparison of AI with Brooklynese.

Don't forget the Midwest TS Computerfest in Cincinnati May 3-4, Ramada Inn, Sharonville

P.O. BOX 438  
CENTERPORT, N.Y. 11721-0438

**LIST GROUP**

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MAY 1986

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# MIDWEST T+S COMPUTERFEST

May 3&4 (Sat & Sun), 1986, 9AM-5PM <sup>both days</sup>

CINCINNATI, OH (Ramada Inn of Sharonville)

*First all-exclusive Times & Sinclair computer fair in several years in this is not a general fair with a T/S table stuffed in the back corner!!*

*Vendors & User Groups & Literature Racks & Bazaar*

*You can go to (to come home from) this T/S fair via comfortable, quiet, point-to-point LUXURY VAN. No airport hassles! No bus cramps! No automobile fatigue! No train conniptions!*

*Roundtrip fare including hotel at fair (double occupancy) is:*

*\$125 for driver      \$175 for rider*

*Drivers take turns (≤ 3½ hours each) and relax/sleep the rest of the time. Everybody arrives clean, aired, raring-to-go!! We need minimum 6 persons, 4 being drivers, so hurry to sign up!!*

*Van leaves NY from Journal Square (H&M right from work) 6PM Friday 2 May; arrive Cincinnati about 10AM. Van leaves hotel at 3PM Sunday 4 May; arrive Journal Square about 7AM.*

*Bring weekenders, supper bag, shopping bags in and avoid cheer! Only, let's not scream/holler/Hare Tadias along the way out.*

*Signup deadline is → Friday 25 April. That's when Martin Helfogtt must have your fare in his hand. It can't just be on your desk then, OK? Send fare, payable to "Martin Helfogtt" to*

*Martin Helfogtt      Include full name, address, day & evening phones! For details, call  
POB 289, Bath Beach      Martin (eves) 718-373-0669  
Brooklyn, NY 11214*

**BE GOOD TO YOUR T/S! GO TO THE T/S FEST!**

## VENDOR REPORT

Howard W. Sams  
4300 W. 62nd Street      800-428-SAMS  
Indianapolis, In. 46268      (317)298-5400

Bit/s Software  
3202 West Fillmore  
Phoenix, Az. 85009

Russell Electronics  
RD 1 Box 539  
Centre Hall, Pa 16828

47th Street Photo  
115 West 45th Street      212-260-4410  
New York City      800 - 221-7774 (outside N.Y.)

RMG Enterprises  
1419 1/2 7th Street  
Oregon City Or 97045  
503-655-7414

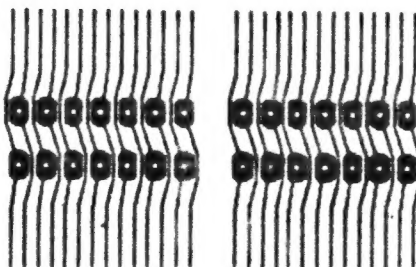
TS1000/ZX81 Photofacts \$19.95.  
Schematic technical info, trouble  
shooting & waveforms.

New Book "200 computer programs  
in BASIC for the TS1000, TS2068 ZX-81"  
\$7.95 + \$1.50 p&H

New Catalog, Winky Board, Most TS  
supplies. QL support.

Brother EP-44 \$99

2068, QL, 1000 Support  
SASE for Catalog



Thanks to W.J. Pedersen

## SUBSCRIPTION NOTICE

Please check your mailing label. Above your last name you will see the month and year in which you will receive your last issue of LISTing (LIST) Newsletter. If this number does not agree with your records please let us know. This is a good time too, to request information on specific subjects for next years newsletters or just let us know what your special needs are.

LIST GROUP

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## KEYBOARD MANIA - Part 4

\*\*\*\*\*

By Cedric R. Bastiaans©

Page A

### NOTE :

The previous installment ended with a note to the effect that I had also found a way to put the Korean SE-JIN version of the TI 99/4A keyboard in the TS 2068 case.

Please be advised, though, that the Japanese version by ALPS is STILL preferred! The black keys look better on the silver computer case but more importantly, the tactile feel is much better. But most of you, who for many years have suffered the pain of inadequate keyboards by Uncle Clive and Timex, might not note any difference and think that the SE-JIN keyboard is "heaven"!

The following is ONLY for the ALPS keyboard; I will give the modifications for the SE-JIN KB in a separate installment of KeyBoard Mania.

### IX.5 PUTTING IN THE JUMPERS

We are now ready to put in jumpers. I suggest you use Wire Wrap hookup wire, I prefer to use 26-Gauge wire, but it is perfectly allright to use the more common 30-Gauge. This so-called Kynar wire is a joy to work with because it does not have the nasty habit of Vinyl wire creeping away on you when heat is applied.

The first thing to do, is to put a 1-pin terminal on the board. Get a STRAIGHT SINGLE-ROW MALE HEADER STRIP, typically measuring .510 inch overall. They come in rows of 36 pins and measure .100" center to center. Radio Shack does not carry them, but most other electronic stores do.

Break off one such header pin and you have a 1-pin terminal, which you can attach with a bit of Epoxy on the PCB, in the LEFT TOP corner area between the traces SOUTH WEST of the bottom pad of Switch 10. (The remaining header pins will be used later on).

In the following, "LEFT", "TOP" and "BOTTOM" again refer to solderpads of keyswitches.

Jumper from BOTTOM 22 (I) to BOTTOM 20 (O).  
Jumper from BOTTOM 25 (D) to BOTTOM 30 (K).  
Jumper from BOTTOM 26 (F) to BOTTOM 29 (J).  
Jumper from BOTTOM 23 (A) to BOTTOM 34 (CS).  
Jumper from TOP 34 (CS) to TOP 35 (Z).  
Jumper from BOTTOM 35 (Z) to BOTTOM 24 (S).  
Jumper from BOTTOM 36 (X) to BOTTOM 25 (D).  
Jumper from BOTTOM 37 (C) to BOTTOM 26 (F).  
Jumper from BOTTOM 38 (V) to BOTTOM 27 (G).  
Jumper from TOP 39 (B) to TOP 40 (N).  
Jumper from BOTTOM 40 (N) to BOTTOM 29 (J).  
Jumper from BOTTOM 41 (M) to BOTTOM 30 (K).  
Jumper from BOTTOM 46 (CTL) to BOTTOM 48 (FCTN) to  
BOTTOM 31 (L).  
Jumper from TOP 46 (CTL) to TOP 48 (FCTN) to TOP 42 (,).  
Jumper from TOP 33 (EN) to TOP 31 (L).  
Jumper from LEFT 47 (SP) to TOP 41 (M).  
Jumper from TOP 11 (=) to BOTTOM 10 (O).  
Jumper from 1-pin terminal to TOP 38 (V).

I DON'T BELIEVE IT!  
YOU MEAN....  
YOU STILL DID NOT  
PUT A REAL  
KEYBOARD IN  
THAT DINKY  
COMPUTER  
OF YOURS?



### IX.6 ADDING THE DEDICATED KEY FUNCTIONS

We will be using either 1N914 or 1N4148 diodes to implement the functions. A word of caution: I have at least once purchased signal diodes from Radio Shack, that had their pigtails severely curtailed, 1" instead of the standard 2". You will need the full 2" length in some of the following.

Put all diodes FLAT against the PCB; I have found no need for insulation, but be careful with this. Avoid shorts!

PERIOD key, switch 43.

Connect two diodes, from BOTTOM 31 (L) and BOTTOM 41 (M), to BOTTOM 43 (banded sides towards 43).

COMMA key, switch 42.

Connect two diodes, from BOTTOM 20 (O) and BOTTOM 18 (U), to BOTTOM 42 (banded sides towards 42).

COLON key, switch 22.

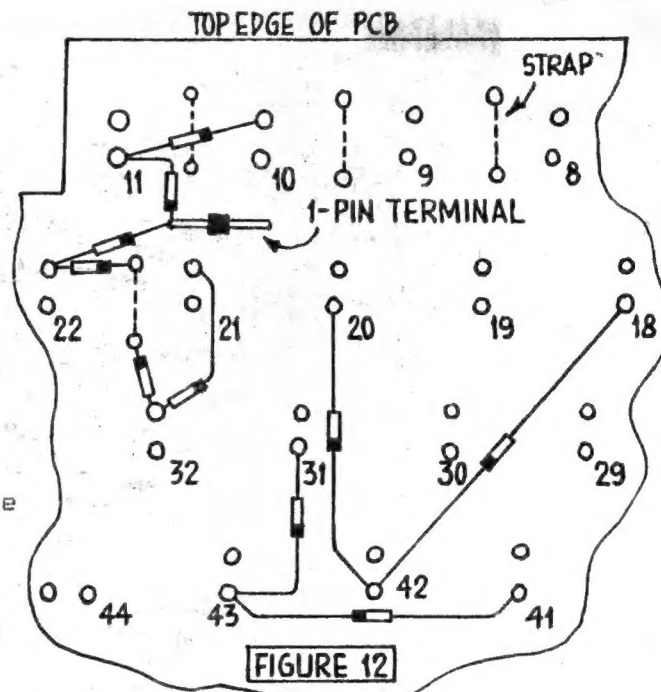
Connect two diodes (unbanded sides towards TOP 22), one to the pad immediately to the right of it and the other going to the 1-pin terminal.

SEMICOLON key, switch 32.

Connect two diodes (unbanded sides towards TOP 32), one to TOP 21 (P), the other to the pad immediately NORTH NORTH WEST of 32.

DELETE key, switch 11.

Connect two diodes (unbanded sides towards BOTTOM 11), one to TOP 10 (O), the other to the 1-pin terminal.



You need not be confused, because I prepared Figure 12 especially for you, to guide you along!

As I mentioned before, I leave the function for the Alpha Lock Key up to you. If you have read the preceding articles, you should have no problem implementing the necessary components for whatever function you dedicate this key to.

#### IX.7 CHECKING OUT THE PRINTED CIRCUIT BOARD

You may already have noticed that pins 6T and 12T on the connector are not used anymore; they have been severed during the trace cutting operation.

Now is the time to check your handiwork.

Break off a strip of 15 HEADER pins and insert this into the ribbon cable connector. Note that you have in effect, made it into a MALE connector!

Next, get yourself an OHM-meter or a continuity tester and check out the ENTIRE matrix as per the modified matrix of Figure 10 (Part 3). For instance: connect the leads of your tester to pins 8T and 11T of the connector, remembering that the pin numbering is from Right to Left, when looking at the printed circuit board, with the connector on top. Pressing either one of the two CapShift keys should produce a very low reading, close to zero ohms or a beep from the continuity tester. Check ALL the remaining keys; none should give you the same result! If there is a problem, you should carefully check the trace cuts and jumpers. Apply this procedure to all keys and their matrix coordinates. This may sound like a time-consuming affair, but it really is not and it pays off to get an early warning of anything that might have gone wrong in the preceding modifications.

Also check out the dedicated key functions, bearing in mind that the current flows from KBD to A-lines; observe the polarity of your test leads!

Correct anything that's not in order.

If you found everything to be in good order; CONGRATULATIONS! You have obviously done a good job and you're half-way into this project!

#### IX.8 FINISHING THE RIBBON CABLE

What's left to do is the interface with the J-9 connector of the computer board. Remove a 14-pin section from the HEADER strip (you're done with the remainder).



Get a 5-inch length of 13-wire ribbon cable (pin 0, ground, of J-9 will not be connected), and wire this between the 14-pin and the 15-pin header strips, according to the "twistor" of Figure 13.

TI	J-9	TI	J-9	TI	J-9	TI	J-9	TI	J-9
1T	10	4T	12	7T	6	10T	7	13T	2
2T	9	5T	13	8T	1	11T	11	14T	3
3T	8	6T	N/C	9T	5	12T	N/C	15T	4

FIGURE 13

I suggest that you keep the 13-wire ribbon cable straight and neatly connected to the 14-pin header strip at the computer end, and TWIST it near the 15-pin header, which you already inserted in the 15-pin TI connector.

Also, make sure that you align the ribbon cable such that the "connector" (=14-pin header) has its #0 pin on its extreme LEFT, while you have the keyboard positioned with the keys UP and its connector (=15-pin header) towards the top.

Check your connections with your tester; make sure that you have no solder bridges between the pins! Then wrap some electrician's tape across the soldered ends of the header strips. Temporarily set the keyboard aside.

#### IX.9 CHECKING OUT THE KEYBOARD

Take your TS 2068 computer and turn it bottom side up. Unscrew the seven sheetmetal screws. Notice that three of these screws are longer; they are for the rearmost holes. Turn over the case and lift up the lid with its keyboard (it doesn't go all the way). Reach under the lid and carefully remove the 14-conductor ribbon cable from connector J-9. Temporarily put the lid aside.

Now, take the modified TI KB and position it immediately above the bottom part of the computer case, with its keys down, the PCB facing up, the 15-pin connector towards you. You will find that contrary to the Timex KB, your new KB has enough ribbon cable to comfortably reach the J-9 connector.

Carefully insert the 14-pin header into J-9 (remember: pin #0, on the extreme left, is NOT connected, but we provided a dummy pin for proper alignment of the header connector).

You are now ready to apply power to the computer; don't connect any peripherals, except for the monitor or TV. If everything checked out before, you should find that the new keyboard should work properly! To check this out, you can lift the keyboard on its "rear-end" allowing you to press the keys.

If you're satisfied, you should now proceed to modify the computer top. Unplug the computer; disconnect the KB and put both in a safe place.

#### IX.10 MODIFICATION OF THE TS 2068 CASE

Retrieve the lid and notice the overlay with all the Extended Mode legends and the indication "PERSONAL COLOR COMPUTER" on the bottom, left of the space bar. We are going to remove this. We do this by CAREFULLY prying up the left lower corner of this overlay, using a small knife with a DULL point. Work your way around; it is possible to do this without undue damage to the overlay, although as far as I'm concerned, it has done its job and should be thrown out! But remember, I'm the maniac and am therefore thoroughly biased! YOU might want to keep it.

Next we notice five Phillips screw heads. Remove these, turn over the lid and the TS 2068 keyboard will fall out. Donate it, together with the overlay, to the local Sinclair/Timex Museum Annex.

Seriously, should you ever decide to put the original TS 2068 keyboard back in place, you may rest assured that INDEED YOU CAN!

Now, remove the 2 grounding clips; we won't use them. Also, snip off the two plastic studs that stick up from the bottom of the lid.

Next comes a bit of sawing, cutting or milling. Study Figure 14; notice the 3 cutouts, depicted in black. You can make these in a variety of ways. By far the easiest is probably SAWING. Use a coping saw with .020" saw blades or use a jeweler's saw. In the latter case, however, be advised that very fine blades need COOLING! Polystyrene, the stuff of which our computer case is made, has a very low melting temperature. The heat created by sawing causes the kerf to melt together again, right behind the saw blade, causing it to bind! I therefore advise you to either use .020" blades or use water as a coolant.

You can also use a milling machine if you have access to one. Or use a Dremel Moto-Tool. Either way, just remember that Cuts #2 and 3 should really be cutouts, whereas Cut #1 need not go all the way through the bottom (you have a choice of milling or "Dremeling" down to the bottom or cutting through). Take your time; notice the sides of the two cutouts that follow the contour of the overlay recess. These have to be cut with some degree of accuracy; the remaining sides are not so critical.

If you're going to saw, I suggest that you drill holes in each corner of a cutout, to facilitate insertion and turning of the saw blade. Remove burrs with a file.

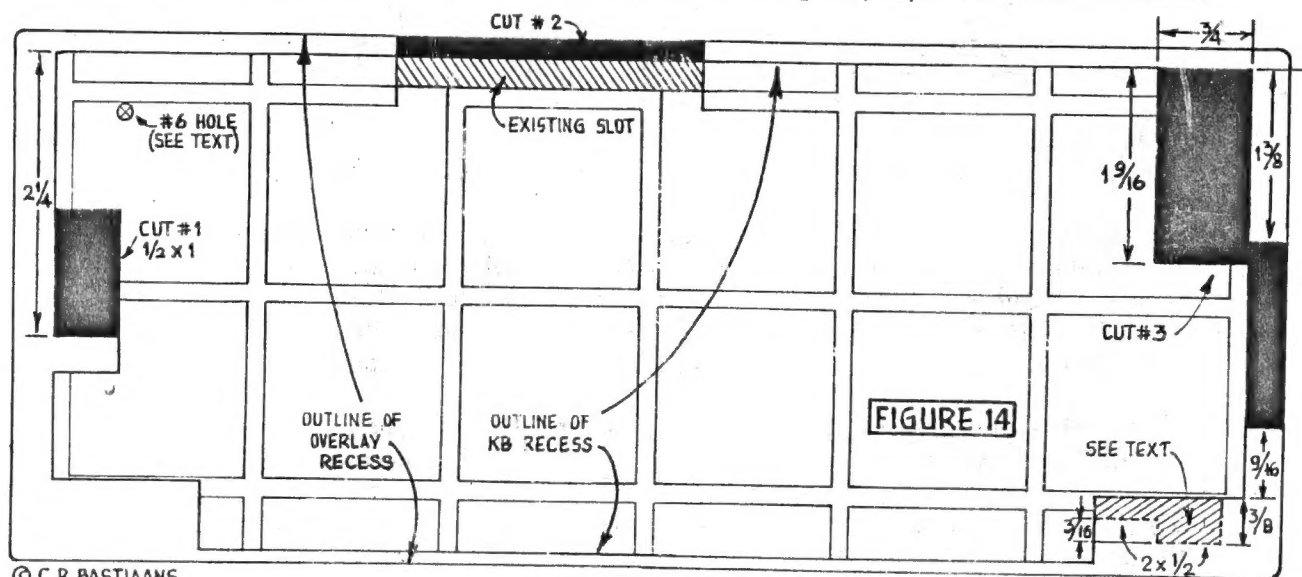
Next, you have to file and maybe countersink the area in the lower right corner; this is to clear some of the protrusions of the PCB connections of Switch 48.

Take your modified TI keyboard, slip the ribbon cable through Cutout #2 and ease it into the modified keyboard recess. You do this by inserting the right-hand portion into cutout #3 first and then dropping the left-hand portion into the recess, moving the keyboard as far to the right as possible. It should sit flush with its PCB right on top of the computer case. Neat, huh?

Take a marker and mark the top hole in the left-hand mounting flange. Drill a #6 hole in the bottom of the lid, use #6 hardware but invert the #6 screw, so that the nut is inside the lid. If you're satisfied with the alignment, put a little Epoxy around the nut onto the metal flange (NOT on the threads!) and you will not have to worry about ever losing the nut inside the lid.

Finally, fold a small piece of stiff cardboard or fish paper and wedge it between the right-hand mounting flange of the TI KB and the TS 2068 case. The KB is firmly held.

Next installment will disclose a neat way of making keytops for the TS 2068.



Tom Woods' Pro/file 2068 takes a long time to save and load its data. I have explained why in a previous issue of the LIST news letter. As a result of that article, I've had many requests for the listing of the XFER routine that cuts the load and save times. Well, OK. Here it is.

Type these program lines exactly as printed here; being sure to use the keywords for **OUT** and **IN** in lines 111 and 112. You may have to input the keyword **IN** before you can type a keyword, then go back and erase it. Next, **SAVE** this "XFER patch" for future use. Now **READY** in the Pro/file program (with Data in D\$) that you wish to add the XFER patch to. Break out of that program after reaching the menu (I presume you know how) and merge the XFER patch into Pro/file. Do this by **MERGE** -- and wait for the OK message. Then **GO** and you are now ready to save your data with the XFER routine. You do this with the **OUT** command. XFER takes over and saves only your data (no empty spaces) from D\$. Now that your data-let's call it xdata- is saved on to tape, it is time to save the altered Pro/file. Do this by breaking out of the program and doing a **CLEAR** (this step is necessary to get rid of that 28k byte long D\$. Now make a backup tape exactly as instructed on page 99 of the Profile manual. Use this tape as your new empty Pro/file. To load your xdata in, just use the **IN** command when the program asks for a search command. Once the xdata is loaded in you use Pro/file just as before. You may get a "SEARCH IS COMPLETE" message the first time you input a search command after you load in the file. Just re-input your search command. This will only happen one time. Any questions...Call me at 212 427 0179.

Or write MYLES COHEN 10 E 95TH ST Apt 6 MNY 10128  
GOOD LUCK

```
50)INK VAL "6": PRINT AT VAL "12",VAL "0"; Type --A-- to
ADD files;TAB VAL "4";--SAVE--
or --LOAD-- for tape;TAB VAL "4";--AUTO-- for AUTOSearch;TAB
VAL "4";--DEF-- changes PRINT
format;TAB VAL "4";--OUT--
for XFER;TAB VAL "4";--IN-- f
or XFER
111 IF X$="OUT" THEN GO TO VAL
"8010"
112 IF X$="IN" THEN GO TO VAL
"8020"
8011 PAPER VAL "7": INK VAL "0":
LET OSA=(PEEK VAL "23627")+VAL
"256"+PEEK VAL "23628")+VAL "6":
DIM P(VAL "1"): LET P(VAL "1")=P
: INPUT "NAME TO SAVE DATA BY: ";
F$: SAVE F$ DATA P(): SAVE F$COD
E OSA,P: CLS: PRINT FLASH VAL "1":
"SAVING IS FINISHED": PAUSE U
AL "60": GO TO VAL "0"
8021 LET NSA=(PEEK VAL "23627")+U
AL "256"+PEEK VAL "23628")+VAL "6":
CLS: INPUT "NAME OF DATA TO
LOAD ?": F$: PRINT "LOAD": LO
AD F$ DATA P(): LET P(VAL "1")
: LOAD F$CODE NSA,P: GO TO VAL "1"
9997 PRINT AT VAL "19",VAL "2":
INK VAL "7": Press --C-- to CREAT
E a new file --L-- to LOA
D a file --C-- to g
et to XFER: INPUT Y$: CLS: PRI
NT AT VAL "19",VAL "0":D$(VAL "1
00" TO VAL "164"): IF Y$="X" THE
N GO TO VAL "8020": IF Y$="L" TH
EN GO TO VAL "5510"
9998 PRINT AT VAL "19",VAL "4":
INK VAL "9": ENTER A NAME FOR TH
IS FILE: INPUT F$: IF F$="" OR
LEN F$>VAL "8" THEN GO TO VAL "9
998"
9999 GO TO VAL "1"
```

```
5 REM traffic
6 PLOT 0,159: DRAW 255,0
10 GO SUB 380
20 DIM a$(32)
30 DIM c$(32)
40 LET c$=""
50 DIM f$(32)
60 LET f$=""
70 INPUT "PAUSE? ";n
80 LET a$=" "
90 INPUT "Right or Left? ";d$
100 IF d$="R" OR d$="r" THEN GO
TO 240
110 PRINT AT 1,0;a$
120 FOR b=1 TO 32
130 LET e$=c$(1)
140 LET c$=c$(2 TO 32)+e$
150 LET b$=a$(1)
160 LET a$=a$(2 TO 32)+b$
170 PRINT AT 1,0;a$
180 PRINT AT 0,0;c$
190 PAUSE n
200 IF b=32 THEN LET b=1
210 IF CODE INKEY$=13 THEN CLS
GO TO 20
220 NEXT b
230 STOP
240 PRINT AT 1,0;a$
250 PRINT AT 0,0;f$
260 FOR b=1 TO 32
270 LET g$=f$(32)
280 LET f$=f$(1)
290 LET b$=a$(32)
300 LET a$=b$+a$
310 PRINT AT 1,0;a$
320 PRINT AT 0,0;f$
330 PAUSE n
340 IF b=32 THEN LET b=1
350 IF CODE INKEY$=13 THEN CLS
GO TO 20
360 NEXT b
370 STOP
380 FOR x=65368 TO 65368+159
390 READ y
400 POKE x,y
410 NEXT x
420 DATA 0,1,2,30,63,127,56,16
430 DATA 240,248,76,78,254,254,
28,8
440 DATA 0,1,3,63,63,127,56,16
450 DATA 255,204,204,255,255,25
5,0,0
460 DATA 240,216,204,252,252,25
4,28,8
470 DATA 2,63,63,63,63,63,18,12
480 DATA 66,254,254,254,254,253
,36,24
490 DATA 72,72,73,72,64,255,18,
12
500 DATA 84,134,5,194,0,255,0,0
510 DATA 84,36,84,36,4,252,72,4
8
520 DATA 0,0,120,63,63,91,74,48
530 DATA 192,192,94,252,252,218
,18,12
540 DATA 3,2,2,63,63,127,56,16
550 DATA 255,125,82,226,253,255
,0,0
560 DATA 254,170,234,170,170,25
5,14,4
570 DATA 0,0,0,0,0,0,3,2
580 DATA 0,0,0,0,0,0,254,66
590 DATA 0,0,0,0,0,127,64,93
593 DATA 0,0,0,0,0,255,0,146
596 DATA 0,0,0,0,0,252,4,36
600 RETURN
1040 REM c$=""
1060 REM f$=""
1080 REM a$=""
1380 REM x=65368 TO 65368+159
1420 REM 0,1,2,30,63,127,56,16
1430 REM 240,248,76,78,254,254,2
8,8
1440 REM 0,1,3,63,63,127,56,16
1450 REM 255,204,204,255,255,255
,0,0
1460 REM 240,216,204,252,252,254
,28,8
1470 REM 2,63,63,63,63,63,18,12
1480 REM 66,254,254,254,254,253,
36,24
1490 REM 72,72,73,72,64,255,18,1
2
1500 REM 84,134,5,194,0,255,0,0
1510 REM 84,36,84,36,4,252,72,48
1520 REM 0,0,120,63,63,91,74,48
1530 REM 192,192,94,252,252,218,
18,12
1540 REM 3,2,2,63,63,127,56,16
1550 REM 255,125,82,226,253,255,
0,0
1560 REM 254,170,234,170,170,255
,14,4
1570 REM 0,0,0,0,0,0,3,2
1580 REM 0,0,0,0,0,0,254,66
1590 REM 0,0,0,0,0,127,64,93
1593 REM 0,0,0,0,0,255,0,146
1596 REM 0,0,0,0,0,252,4,36
2040 REM c$=""
2060 REM f$=""
```

```
2080 REM a$=""
2380 REM x=65368 TO 65368+143
2420 REM 0,63,127,255,127,63,29,
8
2430 REM 0,255,255,255,255,255,2
1,136
2440 REM 63,225,225,255,255,255,
239,136
2450 REM 31,63,127,127,127,255,2
8,8
2460 REM 254,254,254,254,254,255
,56,16
2470 REM 255,127,127,127,127,255
,56,16
2480 REM 255,254,254,254,254,255
,28,8
2490 REM 127,73,73,79,79,255,112
,32
2500 REM 254,146,146,242,242,255
,28,8
2510 REM 0,0,0,127,127,255,56,16
2520 REM 0,0,0,254,254,255,28,8
2530 REM 0,0,0,0,0,255,56,16
2540 REM 0,0,0,0,0,255,28,8
2550 REM 3,255,6,38,39,255,56,16
2560 REM 192,255,48,50,242,255,2
8,8
2570 REM 0,0,0,0,0,0,3,4
2580 REM 0,0,0,0,0,0,248,4
2590 REM 0,0,0,0,0,0,255,0
3000 LET h$="": PRINT "trac
tor PORST ";h$
3010 LET i$="": PRINT "trai
ler FGHIJ ";i$
3020 PRINT
3030 LET j$="": PRINT "Volkswa
gen beetle AB ";j$
3040 PRINT
3050 LET k$="": PRINT "sedan
CODE ";k$
3060 PRINT
3070 LET l$="": PRINT "motorcy
cle KL ";l$
3080 PRINT
3090 LET m$="": PRINT "truck
MNO ";m$
3100 STOP
4000 LET n$="": PRINT "locomot
ive PR ";n$
4010 LET o$="": PRINT "engi
ne ABC ";o$
4020 PRINT
4030 LET p$="": PRINT "locomoti
ve Q ";p$
4040 PRINT "engine ABC ";o$
4050 PRINT
4060 LET q$="": PRINT "tender
DE ";q$
4070 PRINT
4080 LET r$="": PRINT "boxcar
FG ";r$
4090 PRINT
4100 LET s$="": PRINT "passeng
er car HI ";s$
4110 PRINT
4120 LET t$="": PRINT "coal ca
r JK ";t$
4130 PRINT
4140 LET u$="": PRINT "flat ca
r LM ";u$
4150 PRINT
4160 LET v$="": PRINT "caboose
NO ";v$
```

locomotive PR  
engine ABC

locomotive Q  
engine ABC

tender DE

boxcar FG

passenger car HI

coal car JK

flat car LM

caboose NO



LONG ISLAND  
SINCLAIR TIMEX GROUP



## BANK SWITCHING THE 152068 (111)

Before discussing the roll of the SCLD in bank switching, it is desirable to summarize the known functions.

### 1. SCREEN MAINTENANCE

This is the highest priority operation. The HOME RAM with addresses in chunks 243 (DRAM) belongs to the SCLD. The CPU has to beg permission to access it. If access is not granted, when the SCLD is busy, the CPU clock signal is frozen high, putting the CPU in a state of suspended animation.

There are three screen operating modes. At start-up D\_FILE1 & A\_FILE1 are used to create the screen display. There are 256 pixels per active screen line. Ink and paper colors are defined for each 8x8 pixel character space.

In extended color mode, there are still 256 pixels across the screen, but now D\_FILE2 is used to provide ink and paper colors for each 1x8 pixel space. Neither A\_FILE1 nor A\_FILE2 is used, making their space available for other purposes.

BRIGHT and FLASH are also specified in addition to color for these two modes.

In 64 column mode D\_FILE1 & D\_FILE2 are combined to double the horizontal resolution to 512 pixels per line. In this mode the paper, ink, and border colors are fixed for the entire display.

Dual screen mode is the same as normal, except you have the choice of using D\_FILE1 & A\_FILE1 or D\_FILE2 & A\_FILE2.

The display mode code and 64 column mode color selection are stored in the lower six bits of the read/write register at port address 255. The border color is write-only to the lower three bits at port address 254. The SCLD does the port address decoding and maintains these two registers.

### 2. KEYBOARD MONITORING

A read-only register is maintained at port 254. Though all 16 bits of address are required, only the lower eight are decoded. Keyboard data are read from the lower five bits.

### 3. TAPE INPUT MONITORING

Bit 6 of the read-only register at port 254 is assigned to this function.

### 4. TAPE OUTPUT & BEEP

Bits 3&4 of the write-only register at port 254 are assigned to a two bit digital-to-analog converter. With bit 4 off, bit 3 generates the tape signal at too low a level to overcome the bias to the speaker circuits. Toggling bit 4 generates beeps.

If bit 3 happens to be low, some 2066's suffer loss of sound. OUT 254,255 should fix this. (White border)

### 5. SOUND & JOYSTICK OPERATIONS

In this case the SCLD supports no registers but does decode port addresses 245 & 246 to a pair of signal lines. With both lines active, the port 245 write-only steering register (4 bits) is enabled. When only one or the other line is active, a read or write is enabled for the selected register between the CPU and the PSB through port 246. Though the I/O "A" register is one of these, it is configured as an input or output port to the joystick connectors. When in input mode, it cannot be written.

### 6. KEYBOARD INTERRUPT GENERATION

Immediately after completing a display frame, the SCLD issues an interrupt (also supplying a pull-up resistor) to the CPU. It can be blocked by writing a "1" to bit 6 of port 255 without disabling interrupts from other sources.

### 7. LOCAL MEMORY SELECTION

Local memory consists of the HOME RAM, EXROM, and the DOCK. On receipt of the BE signal, no local memory is enabled. This is required when EXBU banks 1 through 253 are established and actively reside in chunks.

### 8. HOME MEMORY SELECTION

The SCLD decodes address bits A14 & A15 to generate four memory enable signals in blocks of two chunks each. Unless address contention exists, this is independent of display generation. Often, two are active simultaneously.

(It is possible for the SCLD to redirect the CPU request to a different block of RAM. This has subtle implications.)

### 9. EXROM & DOCK BANK SWITCHING

Bit 7 of port 255 is a steering bit. When set, EXROM will be found, otherwise the DOCK bank.

The SCLD decodes port address 244 and maintains a read-write register called "horizontal select" (HS). Its bits correspond to chunks. A bit set to "1" means that a CPU request to that chunk will find EXROM or DOCK instead of HOME memory.

The two are mutually exclusive. You cannot have EXROM in one chunk and the DOCK in another.

This limited part of the bank switching system works--up to a point. It is difficult to address EXROM or DOCK above chunk 1.

Added memory, except EXROM & DOCK in chunks 0 & 1, is not selected by the SCLD. You must provide the chunk address decoding of A13 thru A15; and multiplexing if needed for dynamic memory.

### 10. CONTENTION RESOLUTION

While the SCLD is busy with screen maintenance, it operates an independent DRAM data and multiplexed address bus at high speed in a special way. When not busy, a CPU request for DRAM access is honored by issuing signals which open address and data gates between the CPU and SCLD busses. The data gate is bidirectional but the address gate is one-way.

Contention also exists when the CPU requests access to any of the SCLD ports. This is why the design of "hyperloaders" must take into account the fact that the tape signal cannot be sampled more than 15,750 times a second. This resolution limits the amount of tape speed error permissible during all tape operations.

### 11. HOME MEMORY MULTIPLEXING & REFRESH

The SCLD provides this service for the CPU concurrent with screen maintenance except during contention.

It also provides A7R to help in external multiplexing.

-----  
This includes all the SCLD functions which have been explained adequately if not clearly in the literature.

Is it possible to discover its other secrets without a map? Shades of Sherlock Holmes--let's have a go at it.

What evidence do we have?

There is physical evidence. Much of it has little to do with bank switching, but should not be prejudged.

1. The 2068 contains a "daughterboard". The schematic has an error. The bus connection is to MREQ, not WR as shown. It also shows jumpers G-G and H-H. These are actually cut-and-jump locations. There are no terminals.

The function of this board is to remove contention when chunks 2 & 3 have been bank switched and no longer contain HOME RAM.

The cut-and-jump locations become important when BUSREQ acts to take over the system bus.

L.I.S.T.



2. The rear connector pads for DZIN, DZOUT, BUSISO, and one unassigned connection are not designed for internal wiring. The pads have no traces, holes, nor free area to take solder, so...

a. These signals must be provided by an external device.

b. The signals are not needed internally.

The most likely assignment for the free bus line is BUSGRAB. This is the signal line used externally to control the direction of data from a buffered bus. The source of this signal must be the active addressed device being read, no matter where it is in a buffered bus network.

3. The connection marked IOA5 is actually connected to PS6 IOA6. This can cause confusion when reading or writing code.

4. Neither joystick connector has the ground shown on the schematic, though it can be jumped. This might have been done to reserve a pin for future expansion. It is not hard to pick up this ground connection when devices are added that use the joystick ports. The +5V is present. Pin 5 seems to have been reserved for a joystick with a second button if the schematic notation at the switching voltage regulator means anything.

5. Address line A13 is connected to the SCLD!

NONE OF THE DESCRIBED FUNCTIONS USE OR NEED IT!

6. The pull-up resistor on D2 has a simple task. It acts as a RESET to the 2040 printer while initializing.

\*\*\*\*\*

There is a very rich body of evidence in the bank switching and initialization code. Even more exists where TIMEX put in roadblocks in ROM to keep unsupported features from messing up the user. Many of these roadblocks can be removed by replacing them with NOPs, but not everything is that simple. Most of them can be intercepted using ON ERR and the GO TO version of the USR call.

What is important here, is that the roadblocks have interfered with testing how the system works.

At this time, I must digress. The full disclosure of how the TIMEX system works takes so many pages that it would be unfair to have it bump other important articles from the pages of LIST. It would be equally unfair to stretch it out over time.

Half the fun is trying to solve the riddle yourself. With that in mind, I will give you a place to start--and sit back while some of you flounder and others catch this tiger by the tail and twist it.

I mentioned IEEE 488. There is also the "boxes and boards" method used by the AMIGA, the DAISY CHAIN used by the C64, and for simpler applications with the T5206B. They vary in how much external hardware is needed, but the 206B protocol makes them all possible.

Part 4 will describe the basic bank switching controller, but implementing it in hardware depends on how far you want to go.

I said I would give you a starting point. Here it is.

The 206B WILL WORK in all three interrupt modes.

In IM1 (as initialized) the SCLD provides the only interrupt--and that is used to interrogate the keyboard. Before we can use most peripheral devices and bank switching, this must change.

At 3382d in the initialization is the code to load the Z00 I register. It is followed by six NOPs to allow any device that might be listening time to digest it. The initial value is 63. Later, at 348Bd, we find IM1 followed by one NOP, partly for the same reason.

Is the SCLD listening?

There is an old saying. "TEST. DON'T GUESS." (though my wife said I better not)

If so, entering IMB would require that an instruction be put on the data bus in response to the CPU interrupt read cycle. If nothing responds, the data bus will be all ones. This is RST 06 which is the correct instruction. It might be necessary to add pull-up resistors for reliable operation.

This is the 8088 compatible interrupt mode. Because the SCLD does not need to do anything different, this test might not tell us anything.

Entering IM2 is a different story. The interrupting device is responsible for providing an interrupt vector with bit 0 = "0". If the SCLD does nothing, an invalid odd vector (255) will be read, resulting in a crash.

The Z00 "I" register (value 63) establishes the base of the vector table at 1612B--pointing to the character set in ROM.

A crash is assured even if the SCLD provides a valid vector. Changing the value to 74 puts the vector table where it should be; at 5E00h.

A crash is still assured unless we build a table there. For test purposes, all 128 entries should point to the keyboard interrupt routine at 62AEh. With this single-minded table, any vector supplied by the SCLD will act the same as in IM1.

If it crashes, the SCLD was not listening, or we did something wrong. Don't forget to code those six NOPs after loading "I".

Because of the 15,750 Hz limit on sampling rate, (The vector table is in contention space.) these interrupt pointers cannot be used for really fast devices.

For high speed, the non-maskable interrupt (NMI) is needed. This requires using an external interrupt manager chip.

An alternative is providing additional vector tables outside of contention space. It is simple to switch tables.

The connection of A13 to the SCLD is explained when we examine the code for WRITE\_BS\_REG at 635Ch and READ\_BS\_REG at 63AD.

As far as the CPU can see, WRIT\_BS\_REG is a multibyte NOP.

Though the same cannot be said for READ\_BS\_REG, both routines leave with RAM and the PS6 in their original states.

Now THIS is "doubletalk". The SCLD is listening during this time for its MACRO orders.

How does it respond?

It sends signals through the joystick port. This can cause a freeze of the CPU as well.

What do the MACROs do?

TEST. DON'T GUESS.

Part 4 will introduce simple bank switching. GUNG HO!

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Part 10 (not originally planned) will be a description of the operation of the bank switching controller originally intended. It will not disclose complete hardware details for a multitude of reasons, the most important of which is that bank switching can be configured in several forms, all using the 206B protocol. The IEEE488, the multibyte telemetry and networking are examples of higher level implementations which require more hardware. Suffice it to say that the higher level controllers are run through the SCLD macro's after initialization.

Respectfully yours,

Dear Paul,

3/22/86

Part III of BANK SWITCHING THE 206B is like Pandora's box. It is given to the reader with a dare to open it. Along with the dare come some of the keys to the padlocks and chains holding it shut.

Call it a treasure hunt if you will. I figure that others can have as much fun finding it as I did. Why spoil the fun? I expect to read about the progress of unfolding the mysteries in L.I.S.T. and other newsletters. Hardware types will have a great time developing test gear to learn what's going on as well as to do things. This might even spark new areas of interest.

LIST

This is program of amort program on LST-415 Type 4.1  
Line 127 must be changed to LPRINT, correct "Total" interest

```
105 GO SUB 20: LET b=c$
110 PRINT TAB (3-LEN STR$ Z);Z;
TAB (12-LEN I$);I$;TAB (21-LEN P
$);P$;TAB (32-LEN b$);b$
112 LPRINT TAB (3-LEN STR$ Z);Z;
TAB (12-LEN I$);I$;TAB (21-LEN
P$);P$;TAB (32-LEN b$);b$
115 NEXT Z: PRINT : PRINT
117 LPRINT : LPRINT
120 LET x=a: GO SUB 20: PRINT "
Loan Amount =" ;TAB t-LEN c$;c$
122 LPRINT "Loan Amount =" ;TAB
t-LEN c$;c$
125 LET x=d: GO SUB 20: PRINT "
Tot. Interest =" ;TAB t-LEN c$;c$
LET x=d+p: GO SUB 20: PRINT "Tot
al paymts =" ;TAB t-LEN c$;c$
127 LPRINT "Tot. Interest =" ;TAB
t-LEN c$;c$; LPRINT "Total paymt
s =" ;TAB t-LEN c$;c$
130 STOP
150 SAVE "amort" LINE 1
```

see corrected  
(line on next  
print out  
and add 128 line

to be  
corrected  
see attached

Hanny A.

```
18 PRINT "Loan Amount-amount to be borrowed": "No. Periods-months
of loan " "Job set up for auto hardcopy if printer on" "P
ress any key when ready" : PAUSE 0 CLS : GO TO 11
12 REM - 198-1. Auerbach
13 REM copied from CTM comit find date again. Added
by Jim Tedone for LIST.
14 DEF FN d(x)=INT (x*100)/100
16 DEF FN a(x)=(x-c$+1)*.001 AND x=INT x+1*.01 AND (10*x+c$) (LE
N c$)=1
```

```
18 BORDER 5: LET c=100: LET x=0: BEEP 0.07,20: GO TO 25
20 LET x=FN a(x): LET c=FN a(x);STR$ x: RETURN
23 PRINT "PAPER 61** Loan Amortization Schedule **": PRINT
27 LPRINT "PAPER 61** Loan Amortization Schedule **": LPRINT
```

```
30 PRINT "Loan Amount $":
31 LPRINT "Loan Amount $":
33 INPUT a: PRINT a: LET t=24
37 LPRINT a
40 PRINT "No. Periods " :
41 LPRINT "No. Periods " :
43 INPUT n: PRINT n: "Months"
47 LPRINT n: "Months"
50 PRINT "Interest (2 " :
51 LPRINT "Interest (2 " :
53 INPUT y: PRINT y
57 LPRINT y
60 LET y=y/1000: PRINT : LPRINT
65 LET p=a*(y/(1-(1+y)^(-n))) : LET x=p: GO SUB 20: LET d=p-x
```

```
70 PRINT "Monthly Pytm $":c$: POKE 23692,1: PRINT : LET l=a
72 LPRINT "Monthly Pytm $":c$: LPRINT
75 PRINT "Pmt Interest Principal Balance": PRINT "*****"
```

```
77 LPRINT "Pmt Interest Principal Balance": LPRINT "*****"
```

```
80 FOR z=1 TO n: LET x=(1+y)^(-z): LET b=1/x*(p*(1-x)+a)
85 IF b<0.001 THEN LET b=0
90 LET i=b-1+a: LET r=p-1
95 LET i=b: LET x=1: GO SUB 20
```

```
100 LET i=c$: LET x=r: GO SUB 20: LET p=c$: LET x=b:
105 GO SUB 20: LET b=c$
110 PRINT TAB (3-LEN STR$ Z);Z;TAB (12-LEN I$);I$;TAB (21-LEN P
$);P$;TAB (32-LEN b$);b$
```

```
112 LPRINT TAB (3-LEN STR$ Z);Z;TAB (12-LEN I$);I$;TAB (21-LEN
P$);P$;TAB (32-LEN b$);b$
115 NEXT Z: PRINT : PRINT
117 LPRINT : LPRINT
```

```
120 LET x=d: GO SUB 20: PRINT "Loan Amount =" ;TAB t-LEN c$;c$
122 LPRINT "Loan Amount =" ;TAB t-LEN c$;c$
125 LET x=d: GO SUB 20: PRINT "Tot. Interest =" ;TAB t-LEN c$;c$
127 LPRINT "Tot. Interest =" ;TAB t-LEN c$;c$
```

```
130 STOP
150 SAVE "amort" LINE 1
```

CONTACT: APRIL 1986  
MARTIN HELFGOTT  
TEL: (718)-373-0669

PRESS RELEASE

STARTING

Starting STARTING is not  
stuttering; it is merely a  
tongue-twister. Thus spoke the  
co-originator of the new  
ARTIFICIAL INTELLIGENCE  
national Sinclair Timex group  
acronymically called SINCLAIR  
TIMEX ARTIFICIAL INTELLIGENCE  
GROUP is called STARTING.

STARTING at the Trenton  
Computer Festival '86 (April  
19th & 20th) and at the Midwest  
Timex/Sinclair Computefest (1  
May 3rd & 4th), will present an  
interactive, voice synthesized,  
ARTIFICIAL INTELLIGENCE PROGRAM  
where all participants will  
retrieve a printout of their A.  
I. conversations with the  
computer.

In addition, simply to get the  
attention of fair attendees,  
STARTING will feature a display  
consisting of two graphics. In  
the middle pointing to both  
sides is: HERE ARE SOME OF MY  
NEIGHBORS - We may use  
different modes of  
transportation but we share a  
common language BROOKLYNESE.  
The graphic on one side is of a  
bus with Ralph Cramden, Alice, Ed  
Norton, and Trixie-Bensonhurst  
Brooklyn people. The graphic on  
the other side is that of a  
large ethnic family grouping  
from the Star Trek Spaceship  
Enterprise.

One out of every five  
Americans was either born in  
Brooklyn, lived in Brooklyn, or  
is related in some way to  
someone living in Brooklyn.  
Brooklynese is an ARTIFICIAL  
language derived from the  
INTELLIGENCE of various ethnic  
peoples. Our derived NATURAL  
LANGUAGE now communicates to  
the entire world.

Please join our cultural mix  
by communicating in this  
universal ARTIFICIAL  
INTELLIGENCE language of  
BROOKLYNESE.

The future of computing is in  
ARTIFICIAL INTELLIGENCE (A.I.).  
We are beginning a national A.  
I. group. Please enter (for the  
fee of one dollar) your name in  
our A.I. Registry. It will help  
to provide the necessary  
funding in order to make A.I.  
information, communications and  
interactivities possible.

THANK YOU

P.S. A robot -  
MIRA will be nearby dispensing  
pencils to registrants.

Please contact: Martin Helfgott  
Box 2002  
Bath Beach Station  
Bklyn, N.Y. 11214  
or: Pete Fischer  
Box 2002  
TEMPE AZ 85281

GRAPHICS

computer  
the

that

# The CENTRONICS Interface

There have been quite a few articles written recently on the CENTRONICS interface. While there is some difference in printer design, only one variation is of any significance. Some printer designs provide RESET as a separate connector pin. Others use the ASCII escape code.

The routine shown below applies to all printers operating with a Z80 PIO interface having the STB pin connected to one of the status port bits.

## Bank#255 Group-WIDJUP Routine:PIO #2

```

61504 00      EX AF,AF'      128  ISave character
61505 D800    IN A,(IN)      16   IGet Status
61507 E510    AND N          16   ITest BUSY bit
61509 00C     JR NZ,14      61613 IIF BUSY
61601 05      EX AF,AF'      128  Ihere if NOT BUSYGet A
61602 D302    OUT (N),A      120  ISend char
61604 AF      XOR A          120  IZero REG A
61605 F3      DI             120  IBlock keyboard interrupt
61606 D300    OUT (N),A      128  IDrive REG A low.
61608 2F      CPL           120  ISet REG A to 255
61609 D300    OUT (N),A      128  IRestore STB high.
61611 F8      EI             120  IRestore interrupts
61612 C9      RET            120  IGet next char
61613 CD9920   CALL NH        6281 IBREAK?
61616 3B09    JR C,-21       61595 ILoop until NOT BUSY
61618 CF      RST 8          8    IError exit
61619 0C      DC             12  IBREAK error message.
    
```

NOTE #1 If printer is not turned on, data is lost.  
NOTE #2 Printer will lock up if STB is active when ACK rises.  
NOTE #3 Port addresses should be for your interface.  
NOTE #4 Status bit assignments should be for your interface.

This routine will never cause a printer to lock up. The time taken by the Z80 to process a keyboard interrupt is often more than 150 microseconds. If this interrupt was permitted while STB was low, the ACK signal could arrive from the printer before STB went high again.

In this routine, interrupts are blocked while the STB pulse is being sent.

For those not familiar with STB and ACK, the STB is a signal to the printer that valid data is present on the data wires. The ACK is an acknowledgement signal from the printer that the data has been received, and other things are normal.

Both signals are pulses having the timing shown in Figure 1.

The ACK pulse can be as short as a microsecond. A Z80 code loop to test if there is more data to send is longer than the time the signal will be missed. That is why the BUSY signal is tested instead. The reason for the ACK signal is to generate an interrupt when that operating mode is in use. The Z80 PIO can be configured that way but the Z80 does not operate in IM2 as a general rule. (Un vectored interrupt mode)

When things are not normal, like running out of paper, or the printer cover is open, the program keeps looping. In order to break out of this loop, use is made of the ROM subroutine BREAK? at address 6281. Usually, this is sufficient because printers indicate when they are at fault with an alarm and/or light. If not, you might want to test the printer status after calling the BREAK? routine. This is like gilding a lily, though.

BREAK? is a short routine which senses if both the CAPS SHIFT and BREAK keys are pressed. It does not wait for the keyboard interrupt.

Not even one character is lost when breaking in. COMT takes up where it left off. This lets you take care of the printer if necessary, or to enter immediate instructions.

A printer needs two routines to bring it on line. The first is to configure the Z80 PIO interface so it will properly talk to the printer. The second is the equivalent of OPEN #3,"C".

There are six items of information you must provide. You can arrange for these to be default values if you want. For this article they are variables C1 through C6. The parameters they represent are:

C1 = TO PRINTER PORT ADDRESS  
C2 = ABOVE COMMAND REGISTER ADDRESS  
C3 = STATUS/STB PORT ADDRESS  
C4 = ABOVE COMMAND REGISTER ADDRESS  
C5 = BUSY BIT VALUE  
C6 = STB BIT VALUE

The following statements accomplish the initialization.

```

500 RESTORE 600
600 DATA 0,219,C1,238,C5,32,12,
8,211,C3,175,243,211,C1,47,211,C
1,281,201,205,9,32,56,-43,207,12
601 FOR N=61504 TO 61619
602 READ PARM POK N,PARM
603 NEXT N
604 OUT C2,255:OUT C3,255:OUT C
2,7
605 OUT C4,255:OUT C6,255:C6:OU
T C4,7
    
```

The equivalent of OPEN #3,"C" is:

```

610 PONE 26703,154.PONE 26704,2
40 RETURN
    
```

The equivalent of CLOSE #3 is:

```

620 PONE 26703,PEEK 26593:POKE
26704,PEEK 26594:RETURN
    
```

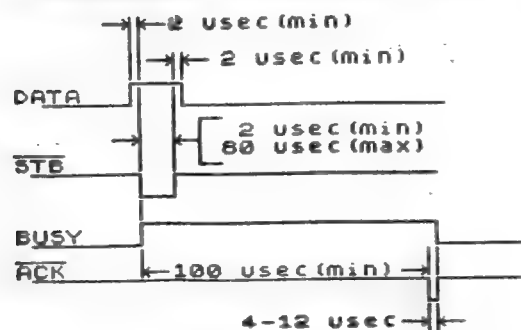
The CLOSE #3 returns control to the Z80 printer. The OPEN #3,"C" enables LPRINT to the printer, but if you want COPY and LIST to work, a lot more machine code is needed. This is because both use tokens and control codes the printer cannot understand.

If your printer is one of those with a wired RESET, you must reconfigure the PIO to address that bit, then restore the working configuration after the reset is completed.

One other problem can be encountered. Printers with graphics capability will not respond to commands until they have been fed all graphic data. This is most easily solved by sending a long string of CHR\$(0) (NOPS) before issuing commands. This will fill the graphics buffer and the extra NOPS will be ignored.

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## FIGURE 1 CENTRONICS TIMING



## HACKERS NOTEBOOK:

### ATARI KEY PAD

Last month we discussed ways to use the STAR RAIDERS Keypad from ATARI with your 2068. As you will recall, the significant problem with this piece of hardware was the absence of a conductor on pin 8 of the pad's plug. This meant that the STB signal put out by the 2068 could not be used on the ATARI pad, making the unmodified pad useless to 2068 users (and most other computers with a standard joystick).

We gave some simple modifications, and some pretty complicated suggestions, for ways to use the key pad with the 2068, and promised to tell you some other ways to make use of this relatively inexpensive hardware item. Some proposals are:

1) Use the cord from a broken ATARI joystick to replace the cord on the Keypad. You'll now be able to read STB and the 5 "direction" lines. (ATARI sticks in particular, use the same slip-on lugs as found on the cord, which came with your keypad). The 4 X 3 matrix is still there, preventing use of more than 4 of the "direction" lines, of course, but you can now use a setup, like the one described last month to get a working, ATARI compatible, partial joystick (e.g. left right and fire).

2) Using female pins from AMP and an external wire to pin 8, perform the modification shown below. This again picks up the STB line. Cost is nearly \$, as well.



3) Modify your 2068's port by running a short jumper from A8 or A9 (Pin 8 of the appropriate pocket) to the N/C or unused pin 5. Again, on a "pure" ATARI joystick, pin 5 isn't used. For your key pad you can use the line that goes to pin 5 as the STB. This won't effect operation with a standard joystick. You can rewire the key pad as described last month.

NOTE: Always check the wiring of any new joystick before using it with this modified set-up. You can perform a quick check just by looking into the plug. If you see a contact, there is probably a wire in the cable from that pin to the switches in the joystick. In this case, if pin 5 is a black hole, you're home free.

4) Buy one male and one female DB 9 set and a pair of hoods. Cross-wire the pins so that pin 8 (STB) of the 2068, goes to a working pin on the key pad. Better yet, make a 'Y' adapter which has two plugs and one socket. The plugs could go to both joystick ports and thus pick-up D0 through D4, D7 and A8 and A9. This may seem a bit wasteful, since only one line (An) is being used on one of the ports, but it does provide a working interface without opening the 2068. DB 9 P&S's and hoods costs less than \$2 each, so a cable like this should cost under \$12, perhaps as little as \$6.

## TypoLot C by The WIDJUP Co.

This is a prototype copy of an improved version of TypoLot. The HELP displays have not been updated, nor the PRELUDE.

A CENTRONICS program interface with selectable parameters can accept any device address and status port organization. There is no provision for vectored interrupt mode. You can revise the default specifications to your own. They are established at line 4842.

The program has two other features.

Using selected characters, you can switch character sets. You can get italics, script, etc. More than two character sets can be implemented.

The second is switching between normal and graphic modes.

There are two default graphic control strings. The ZOOM is at line 4848. It can be used at 68. These are machine dependent but apply to several printers. There are also available directly from the keyboard during LPRINT operations.

## OPERATION

TypoLot files have the first record invisible on output, but you can see it on screen as LINE #1. It is formatted as follows: It contains a FILENAME, LINES USED, FILESIZE, DATE, and PAGES.

It is the flags that determine the printing mode for the file. Only two are implemented in this version, but others are useful for encryption, etc.

IS(1,63)="E" for SCRIPT MODE ~~xxxxxx~~.

IS(1,64)="E" for GRAPHIC MODE

SCRIPT MODE requires graphic mode. Without it, the switch characters show.

Absence of flags results in programmed LPRINT mode. LIST and COPY are not supported.

IS(1,64)="E" invokes double size printing of any line. This is not yet supported in LPRINT file mode.

## This is DOUBLE \$\$\$C.

There is one interesting limitation you must be aware of. The ZOOM flag is actually UDC "C". The character code for C (the real Z80 character) is ASCII for UDCOUT. The substitution is recommended at all times, even though it is no problem in GRAPHIC MODE as you can plainly see. In LPRINT MODE, it is disastrous.

Up to a point, TypoLot files automatically enlarge as you run out of space. Memory limits this to smaller files. Much larger files can be specified in advance, but for most graphic applications, a page per file is good strategy.

The original TypoLot had a proof-reading utility called COPY. This used the Z80 printer in the normal way. The keyboard did not appear on the HELP screen. This utility was expanded, changing almost nothing else except the maximum file size. The Z80 printer is still supported.

SO TO PRINT still prints sideways to the Z80. SO TO COPY still prints sideways to the Z80. When the CENTRONICS printer is selected, only COPY is valid. Implementation of Print is planned for large spread-sheets.

There is nothing preventing writing files, and text output to Disc, Modem, or other devices. Even ASCII is supportable.

© 1986 William J. Pedersen

L.I.S.T.

DISK SYSTEM FOR T/S 2068 FOR UNDER \$200.00

Spurred on by Bob Gilder's L.I.S.T. articles I purchased a disk drive interface from Larken Electronics, RR#2, Navon, Ontario, Canada K4B0LH9 for \$103.00 U.S. I purchased a disk drive from Howard Electronics, Inc., 9419 Neils Thompson Drive, Austin, TX 78759 for \$41.95 which included shipping. I bought a power supply from JDR microdrives, 1224 So. Bascom Avenue, San Jose, CA 95128 for \$49.95 plus shipping. The power supply can be purchased anywhere, but I would recommend it have the capacity of 1.57 amps at +5 VDC and 2.45 amps (0.8 & 1.65) at +12 VDC to handle the surge current. You can easily solder the wires from the controller and disk drive to the power supply.

Although Larken Electronics advertises their interface is compatible with a Shugart 455, I find the Japanese disk drive from Howard Electronics can be used satisfactorily by putting the jumpers for the spindle and stepper motor operations across B and C or only B. This does not require any soldering and can be done in a matter of seconds just using your hands. Use double sided double density soft sector floppy disks which can be purchased almost anywhere.

The Larken interface has a slotted head adjustment in the middle of the top of the board which can be rotated in either direction with a small screw driver. Behind this adjustment on the underside of the board there is a 10 ohm resister. Larry Kenny of Larken was kind enough to suggest substituting a 4.8 ohm resister from Radio Shack which is very easy to do utilizing a penciltype soldering iron. This increases the range of the aforementioned adjustment so you can use different disk drives. To make sure your disk drive is in sync, you should load the LDOS 48.C5 program via LDOS from the demonstration disk supplied by Larken, after first CLEAR 48000. FORMAT the disk then call up BADBLOCKS (you only have to use the first four letters). Use your screw driver on the above adjustment to eliminate CRC ERROR's from appearing as the BADBLOCKS is running. This apparently changes the time delay in reading the disk.

After loading some of my programs from a cassette and saving them on disk (theoretically after FORMATING you have 79 Tracks with a capacity of 1960 per each equalling about 154.8K), I was disappointed to find you cannot VERIFY or MERGE PROGRAMS FROM THE DISK. Also, if you intend on loading Data Arrays from Basic with different sets of data (the real reason to have disk drive), the arrays must have been DIMed so they are first in the VARS area before any other variable. Further, you must CLEAR 61000 to use the LDOS system thus causing a loss of 4535 bites of RAM. I solved this problem by putting a SPECTRUM ROM chip in the computer which gave back most of the lost RAM. I also found the disk system works with TS 2068 utilizing the OMNU EMULATOR cartridge. Now I can save and load both TS 2068 and SPECTRUM programs! Caution, SPECTRUM software must be loaded using the same RAMTOP as they were SAVED.

The big surprise is the demonstration disk contained software such as HOT Z, Megabase (for SPECTRUM only), ZEUS, Tasman II, etc. Of course these are of little use without documentation. One trick in loading these programs is to load the CODE portion first. Load these from BASIC by using RAND USR 63488 followed by a REM LOAD "Program name". Remember LOAD must be spelled out in individual letters.

Another hint is if a CRC ERROR appears during saving, don't count on the program reloading. Instead, SAVE "NOGOOD.Bl" over that same portion of the disk after deleting that file.

Phil McConaghey  
Pembroke Pines, Florida

L.I.S.T.



INFORM FOR UL TO  
BY NO MAGNAVOX RGB YD MONITOR  
CALCULATED BY \_\_\_\_\_ DATE 2-1-86

April 4, 1986

William P. Allen

1stip Terrace NY 11752

Dear William,

Received the April 1986 "LIST" today...and note your problem with the Magnavox RGB monitor... I don't know if this is the same one I purchased recently... mine is a Magnavox RGB Monitor 40... and the color with the "QL" is really outstanding...

I had the same problem as you...but "being in the business" I was able to get some additional info from North American Philips...

The problem was that Magnavox has the horizontal and vertical sync's tied together at the monitor input...it is not necessary to use the vertical sync line (in fact you must not use it at all)...

Attached you will find some additional info...

Hope I have been of some help...

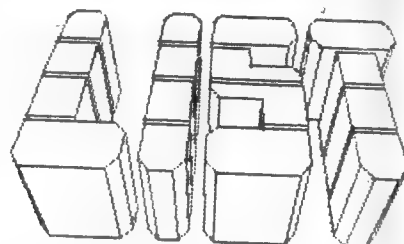
Very truly yours,

Stan Magrod

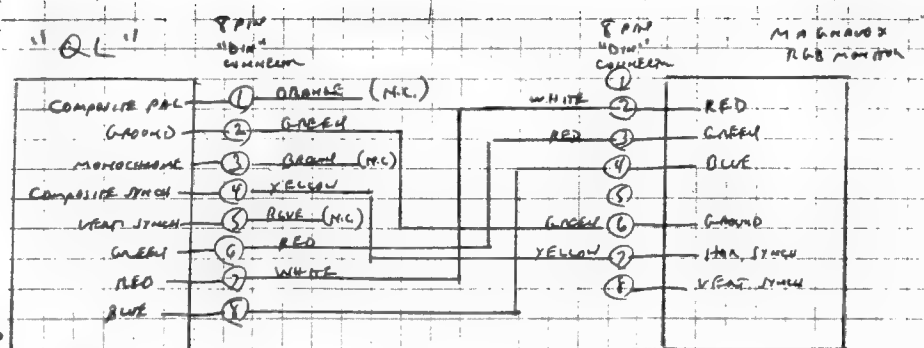
cc: LIST  
Bob Glider

file:11st

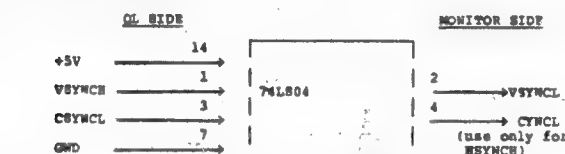
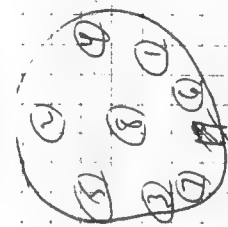
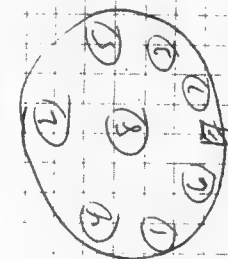
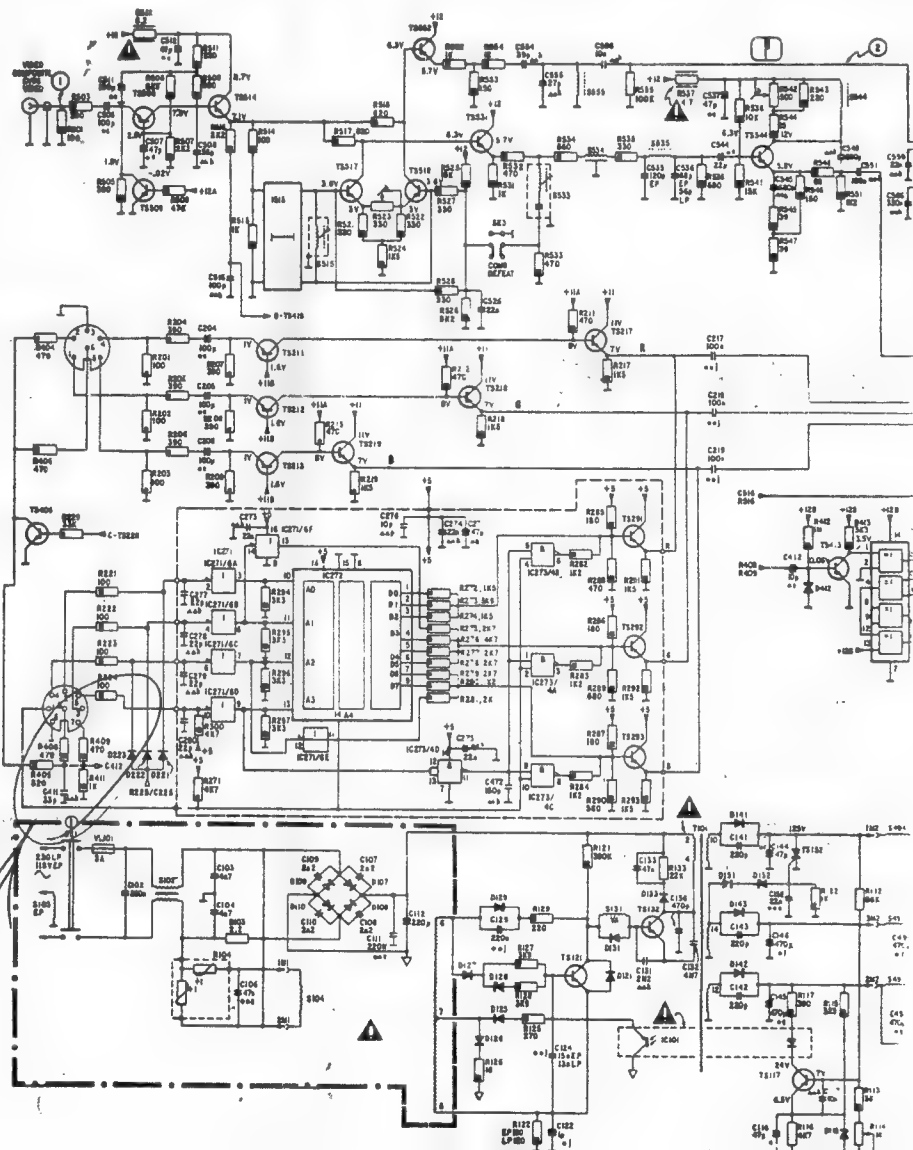
P.S. Before getting info from North American Philips I had gone ahead and ordered the necessary I.C.'s and parts to make the sync conversation...but this became unnecessary... the answer was to leave the line open to the vertical sync...



LONG ISLAND  
SINCLAIR TIMEX GROUP

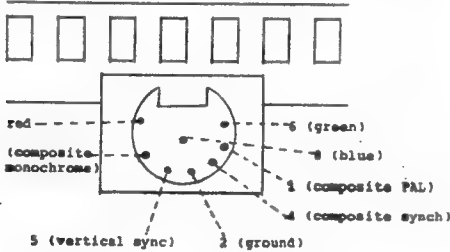


NAP 6523



Pin	Function	Signal	Wire Color	Signal	Level
1	PAL	composite PAL	orange	1V pk-pk into 75 ohms	
2	GND	green	green	1V pk-pk into 75 ohms	
3	VIDE	composite monochrome video	brown	0-5V TTL (active low)	
4	CSYN	composite sync	yellow	0-5V TTL (active high)	
5	VSYN	vertical sync	blue	0-5V TTL (active high)	
6	GRN	green	red	0-5V TTL (active high)	
7	RED	red	white	0-5V TTL (active high)	
8	BLUE	blue	purple	0-5V TTL (active high)	

Diagram of Monitor Connector as Viewed from rear of QL. Showing pin number and functions:



L.I.S.T.

L.I.S.T. Group  
PO Box 438  
Centerport, NY 11721-0438

Dear L.I.S.T. Librarian:

Enclosed you will find my contribution to the Library (finally!!). I owe you two programs by virtue of my having received tapes 3.5 and 4.6. I had hoped to get these to you by the first of the year. I am embarrassed to admit that not only am I a little bit late with them, but one of them still has a (slight) bug in it! Is my face red, or what!? I can only hope that the programs are good enough for you to forgive me and that someone is interested enough to help me find that @&&! bug I keep overlooking!

On the tape, you'll find the following programs:

(005) "fracgard"

My first contribution (Fractal Garden) is the one with the slight bug in it. The program basically generates three types of graphic displays using fractal techniques. One of the techniques (3D LANDSCAPE) should result in a graphic image that, oddly enough, looks like a 3-Dimensional view of a landscape. The program seems willing to plot this image, but it sure don't look like any landscape on THIS planet! The rest of the program works fine, though.

(025) "fracthe"

This program (Fractal Theatre) is a spin-off from Fractal Garden. It's dedicated to the more serious connoisseur of one of Garden's techniques: the plotting of complex curves.

(044) "frdemo" (Character array)

This character array belongs to Fractal Theatre. It contains a "movie" file which can be loaded into Theatre and re-played. Tonight's movie presents a series of screens which show the evolution in contour of a particular species of curve. For those that are interested, the x-lambda value remains at 0 and the y-lambda value is varied from 0.6 to 1.5 (in increments of 0.1) for each curve. Due to the shrinking nature of the curve, the scale was also adjusted for each screen, from 5 (far away) to 2 (zoom in).

(058) "builder"

For extra credit, I'm including this one that I typed in from a back issue of Sinclair User. It's Spectrum, but it might work in 2068 mode. It's a nice utility program to add to your graphic screen design toolbox. It uses UDGs to let you draw buildings and structures.

By the way, I may not have specifically mentioned this in the program documentation for Garden and Theatre, but all of the SAVES, LOADS, and VERITYs that those programs do are written to be compatible with the A&J Microdrive commands as well as the TS commands.

The cassette packing should also be reusable. I designed it with you in mind so that you can use it in the next Library tape mailing...

Well, that's all for now. Hope you enjoy the programs!  
Sincerely,

Michael Leidel

Muscotine, IA 52761

P.S. I guess that's not all... just got the Feb. newsletter and I'm jumpin' at your tremendous response to my keyboard inquiries!! Just what I was looking for...hurry up with Part 2, Cedric, my soldering iron is getting hot! I'm not familiar with Tom Bent's modification, but if it's included in Synware News back issues Volume 2 I soon will be as I'm ordering it next week...

# Computer Living NEW YORK

Greater New York's Computer Community Newspaper

## Joe King

### Yes, Virginia Results

First of all, thanks and an honorable mention to all of you who entered the contest. There weren't many innovative uses for a home computer, but there was sturdy evidence that computers are used at home. Apples (some Macs) and Commodores are most common. Games, Electronic Banking, home finances, word processing, and variations on the filing theme are predominant uses. The winner, though, is a school teacher who didn't listen to the conventional wisdom - rather than putting his Timex Sinclair 1000 into a shoebox in the back of the closet he used it.

Steven Henry Kaye of Brooklyn says that his system consists of the original computer, expanded to 64K with a keyboard and eprom read

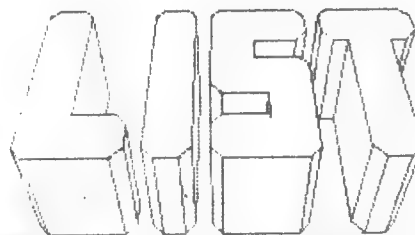
board, ZXLR-8 file handling quickload operating system, modem and Timex 40 column thermal printer. He spends about 2 hours a day managing his student records and doing the clerical chores that often keep a teacher busy out of school. His main commercial program is FILEDATA (21st Century Electronics, Guttenberg, NJ) which stores and manipulates his 150 student records. He uses it to generate cutting slips (as I recall from my school days, students never cut class), failure letters (you mean there are so many failures you really need a computer to print them out?) and a variety of personalized notes.

He claims that the successful use of the computer is proved by the threats he gets from the student body, directed not against him, but the computer.

In addition to paper pushing, he uses WORDINC II.3 to write correspondence (including the letter I am reading now) and an original program written by Mike Haas to generate Random tests, each with an individual answer key. Communications on his Timex puts him in touch with colleagues at other schools.

Originally, I had planned to give a prize of a book or software depending on the type of equipment and use of the computer of the winner. However, I am sorry to say that I didn't anticipate a Timex Sinclair. So a prize of a \$50 U.S. Savings Bond will be sent instead. Congratulations Mr. Kaye. copyright 1986 Joseph P. King. All rights reserved.

Joseph P. King is president of Four Seasons Publishing Co., Inc. (a New York based consulting firm) and is host of The Personal Computer Show heard Sunday nights at 8:00 PM on WBAI-FM 99.5.



LONG ISLAND  
SINCLAIR TIMEX GROUP





March 5, 1986  
West Covina, CA 91790

Paul Donnelly  
C/o LIST  
P.O. Box 438  
Centerport, NY 11721-0438

Dear Paul,

I notice in the February LIST that your EP-44 that typed "TURBO LOADERS" was suffering from the drift of the software set column margin as you go down the page.

I wrote to Brother and Tasman about this and got a good reply from Tasman that says in effect this is a function of the stiffness or regulation of the power supply. If you want to really see the effect put on a 6 volt 300 ma transformer say from your SONY cassette recorder. I plan to see if a good regulated supply will stop this completely. With the 1 amp. Brother transformer it isn't too bad but still is noticable.

By the way I am now using the Oliger I/O for disk drive and also the Kempston. People who think the save everything is primitive, may be right technically, but should rethink their priorities. The Oliger way used with something like Profile 2068 beats the socks off of loading files and disk storage is cheap so who cares about the efficiency. The NMI feature of saving any program running is worth the whole shooting match. The Kempston works like a full computer science DOS, but even if the COPY works you have to rewrite programs for disk...not necessary with Oliger SAFE DOS. I consider SAFEDOS and Profile 2068 the practical kind of program..and Masterfile and SPDOD or KDOS the academic type that look good on paper but will be neglected in use once you see how it can be done!

I'm in HOG HEAVEN this week as I picked up a new COMREX RGB Monitor 13" Screen and found to my delight that my Oliger Expansion board was ready to use RGB when I just plugged in a chip and ran a jumper wire and cut a trace in the computer! The monitor was a last one deal for \$119!

Sincerely,

*Bob Howard*

BOB HOWARD WA6DLI

P.S. Has anyone tried that new little GE Printer with letter quality dot matrix and ability to do graphics? It lists for \$249 and is in some discount houses here for \$139 or so. Not sure if it takes tractor paper or just sheets.

Paul:

Thanks for the many good things you do. Here is the power PLUG info from Radio Shack. At first I used (instead of the above) a COLECO perma power ( C's) into the battery compartment of the double cassette recorder/player. I filled the empty "D" spaces by adding one aluminum foil covered Dummy in order to complete the circuit.

Alternatively one might use its 9 volt extension and dropping resister (about 200 Ohms).

Finally, I used the power supply shown to you yesterday - a Universal type AC/DC adapter. The 3.5 mm plug was simply added in Parallel.

Caution: Check for 6 volts DC supply.

Good Luck

Martin Hehgott

P.S. I will send LIST library tape (3.5) exchange inquiries to the six groups per your request.

P.P.S. The ODD Lot Alkaline batteries (@ 99c for 2 is a terrifice buy!)

Martin:

Thanks for the info and the help with Library exchange.

I thought though, that the Coleco Perma Power module had a dropping resistor in the special battery (the other 3 are dummies).

PD

TO LIST:

RE: January 86 issue page 13 - Vendor Report (Consumers Distributors - I am not successful in locating their address. Will you advise on attached Post Card.

Thanks  
Ike Walker  
Boynton Beach, Fla.

P.S. I really look forward to receiving your newsletter.  
I also have a PR 2300 Olivetti that I have been unable to "activate".

Ike:

Sorry about that, CD is a catalog showroom chain which only has stores in the North East. Closest one to you is in Glen Burnie, Md. - Arthur Brown is selling the G.E. datarecorder for \$25 though.

Please be more specific on "activating" your PR 2300. Do you have an Aerco or Tasman interface, what have you tried, etc? Or perhaps Bob Gilder's printer test program will help. (See LAST MONTH).

COMPUTER DICTIONERY - COMMON HOVYNYMS  
(with apologies to J. Swift)

YORE - Ancient times (e.g., Before Computers). As in  
The forgotten days of yore, when we learned english  
in high school.

YOUR - (see yore), as in "your a computer nut"

YOU'RE - (see yore), as in "How do you like you're computer"

THERE - possession of a place - e.g., They sold there computer.

THEIR - a place for them. - e.g., Their going to hold a computerfest.

TH'AIR - tasteless colorless oderless gas used to sustain life.

THAYER - (Norman) - Jane Fonda's father

LIST

L.I.S.T. Contributions  
P.O. Box 438  
Centerport, NY 11721 0438

Eric Yruegas  
4706 Langley Ave.  
Whitehall, OH 43178-1114  
March 10, 1986

Dear Sirs:

I desire to contribute to your newsletter. I have read past editions, and I think that it is the best newsletter out today. I have written articles for such other newsletters as RAMTOP, from Cleveland, and the ATBU newsletter, here in Columbus, Ohio.

Please find enclosed a review of the TS Tinyboard BBS system.

Your Pal in Computing,

*Eric Yruegas*

Eric Yruegas

(aka Capt. Fuga, SysOp of the RAMM BBS in Whitehall)

### Program REVIEW

by Eric Yruegas

I recently had the opportunity to sample a new BBS program for the 2068, called the TS Tinyboard, written by Randy and Lucy Gordon, of the TS Users from Cincinnati.

It is exactly what the name implies. It has a VERY small message base. 20 messages max., to be exact. But, each messages has a total of 1000 characters, or 25 lines of 40 column text.

TST allows the SysOp (System Operator) to have his own logon message. Upon logon, the caller is asked for his name, and that is it. TST has no provision for any logon password or user checking. Anyone who calls has full access to the system.

Upon enter his name, the caller is shown the MENU. These include, Read messages, Leave message, Chat mode, Time online, and Goodbye.

#### Read messages

Here, the user is shown all the messages that are currently present on the BBS. There is no mention that a CTRL-C (CHRS 3) will stop the scrolling of messages and return the user to the MENU. If the user does read all of the messages, he is returned to the MENU immediately.

#### Leave messages

This section of the BBS allows the caller to leave a message on the BBS for others to read. There is no provision to edit the message, and when the user sends a CTRL-C to save the file, he is promptly given the boot, or in other words, he is kicked out of the BBS! Not too friendly, if you ask me.

#### Chat mode

This allows the user to "chat" online with the SysOp, if the SysOp is available. The users sees "Paging sysop", while at the SysOp's computer, up to 128 blips are sounded to alert the SysOp. If a key is not pressed, the users is told that "The sysop is not available," and is returned to the MENU. If the SysOp does answer the computer's beckoning, a message is printed telling him who he is chatting with. Now both can chat 'till the cows come home, or until the SysOp presses "NOT" on his keyboard. This send the caller back to the MENU.

#### Time on

Here, the BBS calls a routine to read the internal clock and print the elapsed time the caller has been online. This is only for the users information, as the BBS does not kick the user out after a number of minutes have passed, as with some other BBS's.

#### Goodbye

This will log the caller off of the BBS, and prepare to answer another call.

There is the user menu. If nobody is on the BBS, and the SysOp wants to do something, pressing "NOT" reveals a "SYSOP EDITOR"...

Here, the SysOp can Read messages, Delete messages, Leave messages, Save the message base, and Quit the editor. These are useful to the SysOp, as he can do most of the regular functions without having to logon as a user.

Write to me if you do not know of anyone who has it, as it is a public-domain program. Write to:

Eric Yruegas  
4706 Langley Ave.

LIST (aka GISSAMP, SINCLAIR-TIMEX GROUP)

ON  
CENTERPORT, N.Y. 11721

Hi:

FOUND YOU IN USERS GROUPS, FEBRUARY ISSUE OF COMPUTER SHOPPER. ALSO, READ THE TIMEX-SINCLAIR SURVIVAL COLUMN-IMPRESSED.

NEED YOUR INPUT. LOOK TO YOU AS A KNOWLEDGABLE SOURCE.

WAITING ABOUT THE INITIAL PURCHASE OF A COMPUTER.

CAN YOU HELP?

THE "QL" ARTICLE MOST PERSUASIVE, AS WELL AS, FOUNDATION SYSTEMS PRICE \$299 INCLUDING ICE.

RESPECT YOUR RESPONSE AS GUIDANCE IN MAKING A DECISION.

Thank you.

*Shannon* 2-9-86

E. M. DUNN  
216 LINDEN ROBIN ROAD  
WEST AMHERST, NEW YORK  
14228

NA 21121  
HOW ABOUT AN EDITORIAL  
VIEWPOINT. 4300 IS STILL A  
GOOD ENTRY LEVEL PRICE, PERHAPS.  
PD.

2-17-86

LIST  
LET'S HAVE SOME  
MORE OF "BOB GILDER"  
AND HIS "DISK"  
ARTICLES VERY  
GOOD.  
"KEYBOARD MANIA"  
IS GOOD TOO!

*P.T.*

Portland, Oregon 97213  
February 6, 1986

Long Island Sinclair/Timex

P.O. Box 438  
Centerport, N.Y. 11721-0438

Dear Sirs:

Please make me a member of LIST. I recently purchased a TS 1000 with 16K RAM (new) for \$9.99 at a local chainmat house.

I may not attend meetings because of the commute, but I am interested in home brewed programs and accessories (such as keyboards). I enclose my check for \$15 (as quoted in BYTE) and a SASE in case you have a list of accessory vendors available.

Thank you very much,  
*Robert M. Samuels*  
Robert M. Samuels

Portland, OR 97213

CLACKAMUS COUNTY AREA TIS VS  
1419 427 A ST.  
OREGON CITY, OR 97075  
DECEMBER 1981

Brooklyn, NY 11218  
January 26, 1986

Dear Paul et al:

Enclosed is my dues check for 1986. I look forward to another year in L.I.S.T.

I think that I speak for all of us from the New York Times-Sinclair Enthusiasts (NYTES) in New York City who have joined L.I.S.T. in saying that we have enjoyed your meetings and, most especially, LISTING, which serves as a standard to which we aspire with NYTES Network.

We'll all see together whether Commodore, Atari, and/or Sinclair survive 1986; my friends in the financial world are gloomy on all three. I give Sinclair the best chance because they're the leanest of the group and because they have such a strong user base at home in the UK.

Whatever happens, users of all small machines will likely be driven here and here to depend on each other. L.I.S.T. certainly can serve as a model for other groups if it keeps up its good work.

Keep the Faith!

Yours,  
*Stoney*  
Stoney Murray

L.I.S.T.



## LIST LIBRARY TAPE

For the last time! Let me explain how possession of the LIST Library tapes works.

The programs on the tapes are submitted by our members, they may be the members own work, or his, legally obtained, copy of a Public Domain program. The physical tapes are the property of LIST and LIST members only. There is no legal way that someone outside the group may obtain these tapes. (The only exception in the case of official library exchange with bona fide user groups, which, as of March 27, 1986, has not yet occurred). Even then, we insist that the exchange tape be circulated only among members of the exchanging group. It may not be sold or given away, outside the group.

If you hold a LIST library tape in your hand, and you are not a member of LIST (or a recognized exchange group), you are a thief. Individual LIST members do not have the authority to lend the tape out-for any reason. Since the tape cannot be lent out, the only way you could have obtained it is by theft. The question of Public Domain vs. copyright is moot. Physical possession of the tape makes you a thief.

As to copies of the LIST tape. There are no legal copies of LIST tapes 1,2,3 or 4 in circulation\* (as of April 1, 1986) if you see one of these, it is a copy made by a thief. Tape #5 will be circulated in May 1986. Each of the 16 or so legal copies will bear a serial number.

The 60 or 90 minutes of tape is the result of countless hours of keyboard pounding and program effort by our members. They were more than willing to share their efforts with other group members. However, many question why their work should be given away to a non-contributing hanger-on.

If this explanation is not clear, please send your questions to LIST, PO BOX 438, Centerport, N.Y. 11721. Answers to your question will be published in LISTing.

One more comment on Public Domain software. Even Public Domain libraries charge a flat fee for media, duplication labor, equipment and mailing. They are often staffed by paid employees or run as part of a business. LIST has neither of these. The costs for initial mailing, record-keeping, duplication, assembling the tapes and the tapes themselves are borne completely by the paid members of LIST Group. In addition, a tremendous amount of unpaid labor is donated by the tape library volunteers. When thieves obtain copies of the programs, they are stealing money and time from honest group members.

\* Members, of course, each have their personal copy of programs from the tapes. They are not permitted to give away, sell or lend out the programs, however.

## COMMUNICATIONS CORNER

Bulletin Boards California

(213) - 329-3922 Mike Tursucu - 325-0216 AVG.

COMPUTER SHOPPER, MAY 1986

# Bulletin Board

ABBS PIRATES COVE Long Island, NY 516 698 4008  
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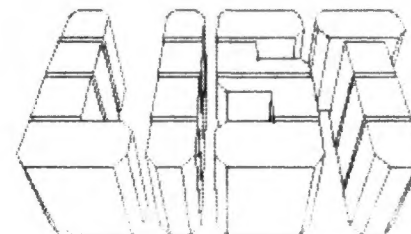
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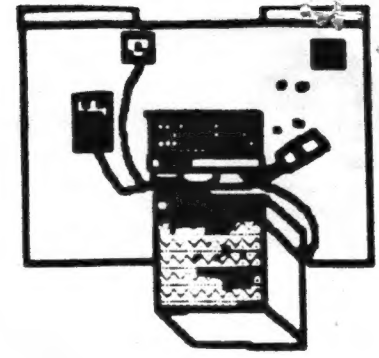


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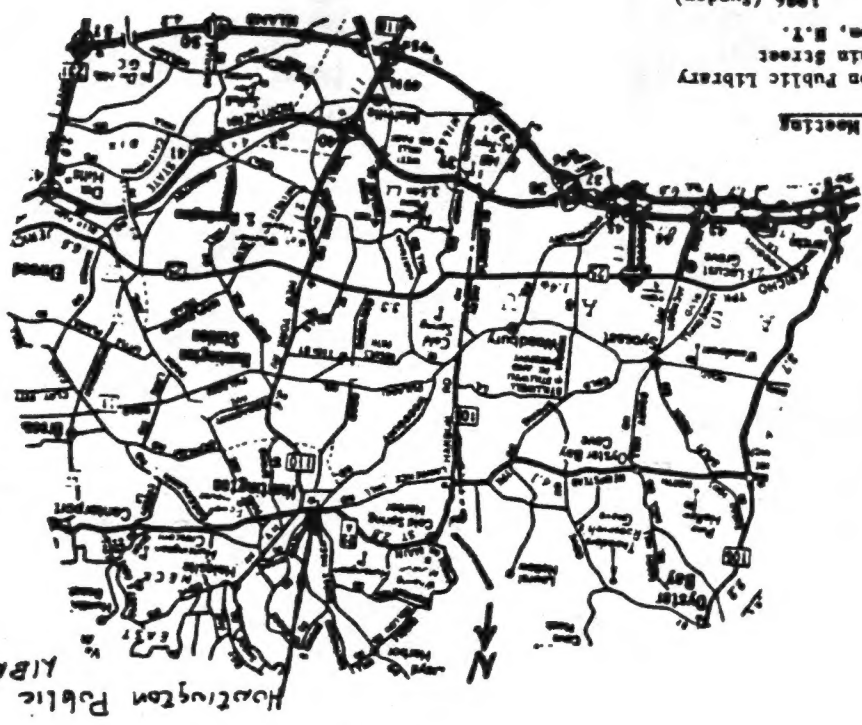


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